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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,020

04/05/2007

Christopher Michael Davies

14299-2015

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09/25/2009

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CANADA

EXAMINER

ZHAO, WEI

ART UNIT

PAPER NUMBER

2419

MAIL DATE

DELIVERY MODE

09/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,020	Applicant(s) DAVIES, CHRISTOPHER MICHAEL	
	Examiner WEI ZHAO	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-106 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19, 21-36, 38-63, 67-74, 76-80, 82-87 and 90-106 is/are rejected.
- 7) ☒ Claim(s) 20, 37, 64-66, 75, 81, 88 and 89 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/2/2008, 9/11/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The specification is objected to because it does not mention “a computer readable medium” that is claimed in claims 36-94.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 40, 58-62, 64-66, 68-70, 72-75, 77-81, 83-84, 86-92, 94, 95, 98-100, 102, and 105 are objected to under 37 CFR 1.75(c) because of the following informalities:

Regarding claim 40, the term “service characteristics” in cline 3 seems to refer back to “service characteristics” in claim 39 line 3. If this is true, it is suggested to change the term “service characteristics” to “the service characteristics”.

Regarding claim 58, the beginning term “A computer readable medium” seems to refer back to the beginning term “A computer readable medium” of

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claim 57. If this is true, it is suggested to change "A computer readable medium" to The computer readable medium ---. The same or similar objections apply to claims 59-62, 64-66, 68-70, 72-75, 77-81, 83-84, 86-89, and 91-92.

Regarding claim 68, it is suggested to change the term "the hop cost" in line 2 to --- a hop cost ---.

Regarding claim 69, it is suggested to change the term "the importance value" in line 2 to --- an importance value ---.

Regarding claim 94, the beginning term "A device" seems to refer back to the beginning term "A device" of claim 93. If this is true, it is suggested to change "A device" to The device ---.

Regarding claim 95, the ending term "one or more predetermined factors" seems to refer back to the term "one or more predetermined factors" in line 8. If this is true, it is suggested to change "one or more predetermined factors" to --- the one or more predetermined factors.

Regarding claim 98, the beginning term "A process" seems to refer back to the beginning term "A computer implemented process" of claim 97. If this is true, it is suggested to change "A process" to The process ---.

Regarding claim 99, it is suggested to change the term "the spread network knowledge" in line 1 to --- a spread network knowledge ---, and to change the term "the identity" in line 5 to --- an identity ---.

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Regarding claim 100, it is suggested to change the term "the frequency" in line 1 to --- a frequency ---.

Regarding claim 102, it is suggested to change the term "the cumulative service characteristics" in line 5 to --- cumulative service characteristics ---.

Regarding claim 105, it is suggested to change the term "the preferred neighbor" in line 8 to --- a preferred neighbor ---.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 36-94 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory matter.

For claims 36-94, they all claim "computer readable medium" and are transitory signals per se, since there is no records showing the "computer readable medium" is a non-transitory storage medium either in the claims or in the specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 19, 21-36, 38-42, 44-59, 63, 67-74, 76-80, 82, 83, 85-87, 90-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. (US 2004/0054807) in view of Robinson (US 2003/0177263).

For claim 19, Harvey et al. teach the self-organizing network comprising: a plurality of nodes (paragraph [0025] lines 14-21); at least one link interconnecting neighbouring ones of the nodes (paragraph [0065] lines 1-6); each of the nodes being operable to maintain information about each of the other nodes that is within a first portion of the nodes (paragraph [0058] lines 1-14), the information including: (i) a first identity of another one of the nodes within the first portion (paragraph [0183] lines 1-7); (ii) for each first identity, a second identity representing a neighbouring node that is a desired step to reach the another one of the nodes respective to the first identity (paragraph [0183] lines 1-7).

Harvey et al. teach all the subject matter with the exception of implementing the third identity representing a neighbouring node that is a desired step to send a request for information about the nodes in a second portion of the nodes. Robinson from the same or similar field of endeavor teaches implementing fairness of the method, each of the nodes is operable to maintain a third identity representing a neighbouring node that is a desired step to send a request for information about the nodes in a second portion of the nodes that is not included in the first portion (paragraph [0100] lines 1-13). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Robinson in the system of Harvey et al. The method of Harvey et al. can be implemented on any type of the method implementing the third identity representing a neighbouring node that is a desired step to send a request for information about the nodes in a second portion of the nodes, which is taught by Robinson. The motivation for using the method of Harvey et al. in implementing the third identity representing a neighbouring node that is a desired step to send a request for information about the nodes in a second portion of the nodes is to provide a better way to transfer the data.

For claim 21, Harvey et al. teach all the subject matter with the exception of implementing each of the nodes to exchange information with its neighbouring nodes. Robinson from the same or similar field of endeavor teaches implementing fairness of the method, each of the nodes is operable to exchange the information with its neighbouring nodes (paragraph [0100] lines 1-13). Thus, it would have been obvious to one of ordinary skill in the art to implement the

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method of Robinson in the system of Harvey et al. The method of Harvey et al. can be implemented on any type of the method implementing each of the nodes to exchange information with its neighbouring nodes, which is taught by Robinson. The motivation for using the method of Harvey et al. in implementing each of the nodes to exchange information with its neighbouring nodes is to provide a better way to transfer the data in the network.

For claim 22, Harvey et al. teach the network wherein at least one link has a set of service characteristics such that any path between two of the nodes has a cumulative set of service characteristics (paragraph [0455] lines 1-2 and paragraph [0456] lines 1-3).

For claim 23, Harvey et al. teach the network wherein the information includes the cumulative set; and the desired step associated with the second identity is based on which of the paths has a desired cumulative set of service characteristics (paragraph [0457] lines 1-11).

For claim 24, Harvey et al. teach the network wherein the service characteristics include bandwidth (paragraph [0431] lines 1-18).

For claim 25, Harvey et al. teach the network wherein the nodes are at least one of computers, telephones, sensors, personal digital assistants (paragraph [0161] lines 1-7).

For claim 26, Harvey et al. teach the network wherein at least one link is based on a wireless connection (paragraph [0058] lines 1-14).

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For claim 27, Harvey et al. teach the network wherein a network core is formed between neighbouring nodes that determine each other is a desired step to locate the nodes within the second portion (paragraph [0453] lines 1-10).

For claim 28, Harvey et al. teach all the subject matter with the exception of implementing the node to deliver instructions to other nodes between the core and itself. Robinson from the same or similar field of endeavor teaches implementing fairness of the method, wherein each node is operable to deliver instructions to other nodes between the core and itself to maintain information about itself (paragraph [0100] lines 1-13). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Robinson in the system of Harvey et al. The method of Harvey et al. can be implemented on any type of the method implementing each node to deliver instructions to other nodes between the core and itself, which is taught by Robinson. The motivation for using the method of Harvey et al. in implementing each node to deliver instructions to other nodes between the core and itself is to provide a better way to transfer the data in the network.

For claim 29, Harvey et al. teach the network wherein the information includes, for each the first identity, a value representing a distance-to-data marked stream for the node associated with the first identity (paragraph [0073] lines 10-15).

For claim 30, Harvey et al. teach all the subject matter with the exception of implementing the nodes associated with the first identity are ranked in an

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ascending order. Robinson from the same or similar field of endeavor teaches implementing fairness of the method, wherein nodes associated with the first identity are ranked in an ascending order increasing according to the distance and the instructions are delivered to those nodes according to the rank (paragraph [0008] lines 6-16). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Robinson in the system of Harvey et al. The method of Harvey et al. can be implemented on any type of the method implementing the nodes associated with the first identity are ranked in an ascending order, which is taught by Robinson. The motivation for using the method of Harvey et al. in implementing the nodes associated with the first identity are ranked in an ascending order is to implement the sequential routing algorithm for transferring data in the network.

For claim 31, Harvey et al. teach the network comprising at least 2,000 nodes interconnected by a plurality of links (paragraph [0065] lines 1-6).

For claim 32, Harvey et al. teach the network comprising at least 5,000 nodes interconnected by a plurality of links (paragraph [0065] lines 1-6).

For claim 33, Harvey et al. teach the network comprising at least 10,000 nodes interconnected by a plurality of links (paragraph [0065] lines 1-6).

For claim 34, Harvey et al. teach the network comprising at least 100,000 nodes interconnected by a plurality of links (paragraph [0065] lines 1-6).

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For claims 35 and 36, they both are similar to claim 19. Claims 35 and 36 are rejected for the same reasons as to claim 19.

For claims 38-40, these three claims are similar to claims 21-23 individually. Claims 38-40 are rejected for the same reasons as to claims 21-23.

For claim 41, Harvey et al. teach the computer readable medium wherein the service characteristics include bandwidth (paragraph [0431] lines 1-18).

For claim 42, Harvey et al. teach the computer readable medium wherein the service characteristics include latency (paragraph [0457] lines 1-11).

For claims 44-47, these four claims are all similar to claim 25. Claims 44-47 are rejected for the same reasons as to claim 25.

For claims 48-56, these claims are similar to claims 26-34 individually. Claims 48-56 are rejected for the same reasons as to claims 26-34.

For claim 57, Harvey et al. teach the computer readable medium for storing a set of programming instructions for execution by, or on behalf of, a first node on a hierarchical network having a plurality of nodes and at least one link interconnecting each of the nodes (paragraph [0327] lines 1-9), the instructions causing a computing apparatus to select and maintain information about a parent node, the parent node comprising a neighbouring node in the network that is above the first node in respect to the hierarchy of the network or equal to the first node when there is no node that is above the first node (paragraph [0327] lines 1-9).

For claim 58, Harvey et al. teach the computer readable medium wherein the instructions cause the computer apparatus to select among a plurality of parent nodes based on which parent node is the next best step to a predetermined set of other nodes on the network (paragraph [0327] lines 1-9).

For claim 59, Harvey et al. teach the computer readable medium wherein the instructions cause the computer apparatus to select and maintain information about a plurality of parent nodes in the network to facilitate formation of different hierarchies within the same network (paragraph [0327] lines 1-9).

For claim 63, Harvey et al. teach the computer readable medium for storing a set of programming instructions for execution by, or on behalf of, a first node on a self-organizing network having a plurality of nodes and at least one link interconnecting the nodes (paragraph [0065] lines 1-6), the instructions causing a computing apparatus to select and remove information about one or more missing nodes in the network by delaying the sending of predetermined classes of updates to the network (paragraph [0327] lines 1-9).

For claim 67, it is similar to claim 63. Claim 67 is rejected for the same reasons as to claim 63.

For claim 68, Harvey et al. teach the computer readable medium where the predetermined internal state is where the hop cost to the node increases more than a predetermined amount (paragraph [0098] lines 1-18).

For claim 69, Harvey et al. teach the computer readable medium where the predetermined internal state is where the importance value associated with the node increases more than a predetermined amount (paragraph [0327] lines 1-9).

For claim 70, Harvey et al. teach the computer readable medium where the predetermined class indicates that no route is possible to the node via the sending node (paragraph [0098] lines 1-10).

For claims 71-74, these four claims are similar to claims 67-70 individually. Claims 71-74 are rejected for the same reasons as to claims 67-70.

For claims 76 and 77, these two claims are similar to claims 63 and 68 individually. Claims 76 and 77 are rejected for the same reasons as to claims 63 and 68.

For claims 78-80, these three claims are similar to claims 63, 22, and 23 individually. Claims 78-80 are rejected for the same reasons as to claims 63, 22, and 23.

For claim 82, it is similar to claim 63. Claim 82 is rejected for the same reasons as to claim 63.

For claim 83, Harvey et al. teach the computer readable medium wherein the instructions further cause the computing apparatus to perform an $O(1)$ lookup for packet routing when the first node receives a data packet having a specific node number identifying another node (paragraph [0384] lines 1-9).

For claim 85, Harvey et al. teach the computer readable medium for storing a set of programming instructions for execution by, or on behalf of, a first node on a self-organizing network having a plurality of nodes and at least one link interconnecting each of the nodes, the instructions causing a computing apparatus to forward messages from a source node to a destination node via neighbors depending on the latency to the destination node via the neighbors (paragraph [0258] lines 1-6).

For claim 86, Harvey et al. teach the computer readable medium wherein the latency of the internal message queue of messages for a destination node is used to decide which neighbor messages for the destination node should be sent to (paragraph [0258] lines 1-6).

For claim 87, Harvey et al. teach the computer readable medium wherein messages for a destination node are sent to a neighbor node if the latency to the destination node from the neighbor node is equal or less then the latency of the message queue for messages being sent to the destination node (paragraph [0258] lines 1-6).

For claims 90-92, these three claims are similar to claims 19, 22, and 58 individually. Claims 90-92 are rejected for the same reasons as to claims 19, 22, and 58.

For claims 93 and 94, these two claims are similar to claims 19 and 25 individually. Claims 93 and 94 are rejected for the same reasons as to claims 19 and 25.

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For claims 95-97, these three claims are all similar to claim 19. Claims 95-97 are rejected for the same reasons as to claim 19.

For claim 98, it is similar to claim 24. Claim 98 is rejected for the same reasons as to claim 24.

For claims 99-101, these three claims are all similar to claim 19. Claims 99-101 are rejected for the same reasons as to claim 19.

For claims 102-104, these three claims are similar to claims 23, 19, and 87 individually. Claims 102-104 are rejected for the same reasons as to claims 23, 19, and 87.

For claims 105 and 106, they both are similar to claim 19. Claims 105 and 106 are rejected for the same reasons as to claim 19.

9. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. (US 2004/0054807) in view of Robinson (US 2003/0177263) as applied to claim 36 above, and further in view of Lagno et al. (US 2005/0070303).

For claim 43, Harvey et al. and Robinson teach all the subject matter with the exception of implementing the service characteristics including bit error rate. Lagno et al. from the same or similar field of endeavor teaches implementing fairness of the method, wherein the service characteristics include bit error rate

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(paragraph [0077] lines 6-19). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Lagno et al. in the system of Harvey et al. and Robinson. The method of Harvey et al. and Robinson can be implemented on any type of the method implementing the service characteristics including bit error rate, which is taught by Lagno et al. The motivation for using the method of Harvey et al. and Robinson in implementing the service characteristics including bit error rate is to enhance the better quality-of-service for transferring data in the network.

10. Claims 60-62, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. (US 2004/0054807) in view of Robinson (US 2003/0177263) as applied to claims 36 and 57 above, and further in view of Lahr et al. (US 2002/0046273).

For claim 60, Harvey et al. and Robinson teach all the subject matter with the exception of pushing information from the first node to a subset of neighboring nodes. Lahr et al. from the same or similar field of endeavor teaches implementing fairness of the method, wherein the instructions cause the computer apparatus to push information from the first node to a subset of neighbouring nodes including at least one of the selected parent nodes (paragraph [0159] lines 1-9). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Lahr et al. in the system of Harvey et al. and Robinson. The method of Harvey et al. and Robinson can be

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implemented on any type of the method pushing information from the first node to a subset of neighboring nodes, which is taught by Lahr et al. The motivation for using the method of Harvey et al. and Robinson in pushing information from the first node to a subset of neighboring nodes is to enhance the better quality-of-service for transferring data in the network.

For claim 61, Harvey et al. and Robinson teach all the subject matter with the exception of pushing information received from the neighboring node to at least one of the selected parent. Lahr et al. from the same or similar field of endeavor teaches implementing fairness of the method, wherein the instructions cause the computer apparatus to push information received from a neighbouring node to at least one of the selected parent nodes (paragraph [0159] lines 1-9). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Lahr et al. in the system of Harvey et al. and Robinson. The method of Harvey et al. and Robinson can be implemented on any type of the method wherein the instructions cause the computer apparatus to push information received from a neighbouring node to at least one of the selected parent nodes, which is taught by Lahr et al. The motivation for using the method of Harvey et al. and Robinson in pushing information received from the neighboring node to at least one of the selected parent is to enhance the better quality-of-service for transferring data in the network.

For claim 62, Harvey et al. and Robinson teach all the subject matter with the exception of pushing information to a node that has selected the first node as

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a parent node. Lahr et al. from the same or similar field of endeavor teaches implementing fairness of the method, wherein the instructions cause the computer apparatus to push information to a node that has selected the first node as a parent node (paragraph [0159] lines 1-9). Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Lahr et al. in the system of Harvey et al. and Robinson. The method of Harvey et al. and Robinson can be implemented on any type of the method on pushing information to a node that has selected the first node as a parent node, which is taught by Lahr et al. The motivation for using the method of Harvey et al. and Robinson in pushing information to a node that has selected the first node as a parent node is to enhance the better quality-of-service for transferring data in the network.

For claim 84, it is similar to claim 62. Claim 84 is rejected for the same reasons as to claim 62.

Allowable Subject Matter

11. Claims 20, 37, 64-66, 75, 81, 88, and 89 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 20, the prior art in single or in combination, fails to teach "the network wherein the third identity is determined based on which of the

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neighbouring nodes most frequently appears in each the second identity” in combination with other limitation of the claim(s).

Regarding claim 37, the prior art in single or in combination, fails to teach “the computer readable medium wherein the third identity is determined based on which of the neighbouring nodes most frequently appears in each the second identity” in combination with other limitation of the claim(s).

Regarding claim 64, the prior art in single or in combination, fails to teach “the computer readable medium where a node update is delayed before being sent to a neighbor node if an update about the node has not been previously sent to the neighbor” in combination with other limitation of the claim(s).

Regarding claims 65 and 66, the prior art in single or in combination, fails to teach “the computer readable medium where a node update is delayed before being sent to a neighbor node if the previous update about the node sent to the neighbor belongs to a predetermined class of updates” in combination with other limitation of the claim(s).

Regarding claim 75, the prior art in single or in combination, fails to teach “the computer readable medium wherein the instructions further cause the computing apparatus to send route updates about the destination node on a relatively more frequent basis the closer that the first node is to the route

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between the source node and the destination node” in combination with other limitation of the claim(s).

Regarding claim 81, the prior art in single or in combination, fails to teach “the computer readable medium wherein the instructions further cause the computing apparatus to communicate to other nodes that the first node wishes only to receive a predetermined number of updates with the highest importance values” in combination with other limitation of the claim(s).

Regarding claims 88 and 89, the prior art in single or in combination, fails to teach “the computer readable medium wherein messages for a destination node are not sent to a neighbor node when the neighbor node is in a specified state regarding messages for the destination node” in combination with other limitation of the claim(s).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haverinen (US 2004 /0097232) is cited to show a method of handover and updating a tunnel from a first access device to a second access device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEI ZHAO whose telephone number is

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(571)270-5672. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wei Zhao
Examiner
Art Unit 2419

/W. Z./
Examiner, Art Unit 2419

/DANG T TON/
Supervisory Patent Examiner, Art Unit 2419/D. T. T./

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Supervisory Patent Examiner, Art Unit 2419